

Plaintiffs' Exhibit 183



Recording June 2019:

<https://drive.google.com/file/d/1recWF40EVr02hGyin9jXW44rhG3Xe05H/view>

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Ad Server

Ad Server is a tool that lets publishers:

- Decide where on their pages ads run
- Create and manage campaigns
- Target campaigns to certain users or places

Traditionally there is direct relationship between advertisers and publishers, campaign assets are sent over via email and all configuration is done in the publisher's ad server based on a signed order form.

You can read up more on Ad Servers [here](#).
And in general about basis and history of online advertising in all posts in [this series](#).



The logo for Google Ad Manager, featuring three stylized, overlapping diagonal bars in blue, yellow, and green, with the text "Google Ad Manager" below them.

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(Ad) Exchange

(Ad) Exchange is an online, auction-driven marketplace where ad impressions are sold and bought in real time.

Publishers can place exchange tags on their websites, which will send ad requests to the exchange with every impression.


Bidders can bid for each impression - how much they want to pay and what ad they want to display.

Exchange selects the winner and displays the ad.



You can read up more on Ad Exchanges [here](#).

And in general about basis and history of online advertising in all posts in [this series](#).

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Supply Side Platform


SSP is a publisher tool that lets them configure rules that (Ad) Exchanges must adhere to on the publisher inventory.

For example: publishers can set advertisers they don't want on their sites (for example competitors) and they can set minimum prices for which ads can be bought (to protect direct ad sales)

Often SSP and Exchange are bundled as one product and both names are used interchangeably.



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Publisher tools

Within Google publisher advertising stack, all above mentioned components (Ad server, Ad Exchange and SSP) are part of [Google Ad Manager](#) platform. (Formerly called DFP - DoubleClick For Publishers)

For smaller publishers [Google AdSense](#) allows them to monetize their inventory.



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Demand Side Platform


DSP is an advertiser tool which is used to define and manage campaigns - who the campaign should reach, what creative should be served, what budget is allocated to campaign.

DSPs respond to ad exchange bid requests by submitting which campaign and for which price they want to show on a given impressions



Display & Video 360

You can read up more on DSPs [here](#).
And in general about basis and history of online advertising in all posts in [this series](#).

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Advertiser Tools


Google's suite of advertiser tools are called [Google Marketing Platform](#). DSP is called [Display and Video 360](#) (formerly DBM - DoubleClick Bid Manager).

The advertiser tool for smaller advertisers is called [Google Ads](#) (formerly AdWords).

Introductory training to buy-side of RTB is here: [go/rtb-training](#)



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Video 360

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
Inventory types

Inventory is the sum of requests to which ads can be delivered.
There are 3 main inventory types:

- **Display content**
 - Regular ad banners you see on web pages
- **Video content**
 - In-stream - for example YouTube pre-roll ads
- **In-app**
 - Ads delivered to mobile applications (many formats including banners and video)

We will mostly focus on Display ads in this deck. Most basic concepts apply across all inventory types with Video and In-app adding additional layers of functionality.

4th main inventory type is search ads (AdSense For Search), but it's out-of-scope for this deck and is not serviced by Google Ad Manager.

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Inventory structure

Ad Manager inventory structure is comprised of:

- **Ad Unit** - basic building block of inventory, can be organized in a tree of Ad Units, usually corresponds to 1 Ad Slot
- **Ad Slot** - a place on the page where ads can be shown, each Ad Slot needs to have an Ad Unit associated with it
- **Placement** - a collection of Ad Units to make targeting campaigns easier
- **Key/Values** - webpage can pass key-value pairs of custom attributes (article ID, user gender, etc...) to be used for campaign targeting



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Google Publisher Tag

GPT is a Javascript library that publishers use to tag their web pages so they can talk to Google Ad Manager backend.

There are multiple ways to implement GPT on the page depending on the publisher need and there is API documentation available [here](#).

```
<head>
<script async="async"
src="https://www.googletagservices.com/tag/js/gpt.js"></script>
<script>
var googletag = googletag || {};
googletag.cmd = googletag.cmd || [];
</script>
</head>
<body>
<div id="div-gpt-ad-1234567891234-0">
<script>
googletag.cmd.push(function() {
  googletag.defineSlot('/1234/sports/football', [728, 90], 'div-gpt-ad-1234567891234-0')
    .addService(googletag.pubads())
    .setTargeting("Gender", "Male");
  googletag.enableServices();
  googletag.display('div-gpt-ad-1234567891234-0');
});
</script>
</div>
</body>
```

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Ad Request

GPT tag on the web page sends an **Ad Request** to the Ad Manager backend. The Ad Request contains information about the impression:

- URL of the site
- Browser User Agent
- Slot parameters (Ad Unit, size, key/value pairs)
- etc.

Ad Request also contains user-related information like Cookies, User IDs, etc, that can be later at the backend matched to user demographics and behavior profiles, audience segments, etc.

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
Useful acronyms

(e)CPM - (effective) Cost Per Mille - price for 1000 ad impressions. Standard unit of measurement for impression pricing. For reporting can be calculated as revenue divided by number of impressions times 1000

CPC - Cost Per Click - price for 1 click

CTR - Click Through Rate - number of clicks divided by number of impressions

CPD - Cost per Day - the amount an advertiser is charged daily for a Sponsorship campaign, where they are guaranteed a certain proportion of a publisher's inventory.

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Google Ad Exchange

Google Ad Exchange is, as name suggests an Ad Exchange run by Google.

On the publisher side it is integrated into Ad Manager along with all SSP features (like setting pricing rules for example).
Google Ad Manager is the only way to access Google Ad Exchange as a publisher*.

The buyer facing side of Google Ad Exchange is called **Authorized Buyers** and different DSPs can connect to it using our proprietary [Real Time Bidding](#) protocol or an industry standard [OpenRTB](#).

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* - as of June 2019 there is still a legacy way to access AdX standalone, but it will go away in a near future

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Ad Exchange auction


Ad Exchange gathers signals from the request: URL, what the page is about, User Agent, ad slot size, cookie id.

Next Ad Exchange sends a **Bid Request** to DSPs with this information asking them to bid on the impression.

DSPs respond with **Bid Responses** indicating how much they are willing to pay and what ad they want to deliver.

Ad Exchange collects those responses, does filtering against publisher defined rules and runs a **first-price auction**. This means - the highest bidder wins and pays what they bid. In the past Ad Exchange auction used to be a second-price auction.

You can read more on the Ad Exchange auction in [this Help Center article](#)

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